# Lesson 4- Assignment 2

# Calculating instantaneous rate of change

**Learning Intentions:**

Students will be able to:

* calculate the instantaneous rate of change using first principles

**Success Criteria**

* I can write the coordinates of a point on the graph of a function in the form (x, f(x))
* I can write an expression for the slope of a secant in terms of x and h
* I can find the limit of the slope of a secant to calculate the slope of a tangent
* I can explain the process of finding the instantaneous rate of change using first principles

**Section A:**

1. [Watch this instructional video](https://www.youtube.com/watch?v=FHEISw_5DM8) in conjunction with this [interactive GeoGebra file](https://www.projectmaths.ie/geogebra/first-principles/) to understand how to derive an expression for the instantaneous rate of change of a function using first principles.
2. Use the slider called “Question” to change the function displayed in the file. Use your learning from the instructional video to write down the expression for the instantaneous rate of change for different functions in the GeoGebra file. Use the checkboxes to check your work.